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In the author's sense, then, the supra-œsophageal ganglion is a proper brain only in the arthropods; in the molluscs and annelids it is only a sense centre. In arthropods, especially crustaceans, evidence was obtained of a crossing of the nerve-paths in the sub-œsophageal ganglion, analogous to the decussation of the pyramids in the medulla of vertebrates.

Cerebral Localization.—The well-known statistician, Bertillon, was deaf in his left ear from his tenth year, and was also left-handed. Manouvrier[2] publishes the results of a detailed examination of his brain. The right superior temporal convolution (position of centre of hearing) was narrow, straight, and poorly developed, while that of the other side was broad, winding, and provided with secondary sulci. In accordance with the presence of left-handedness, the speech centre was to be looked for upon the right side; and accordingly Broca's convolution on that side was considerably more developed than upon the left. Bertillon, therefore, "spoke with his deaf hemishere," which must be regarded as an unfavorable relation, and with this must be associated the difficulty of speech from which he suffered in life. The right sight centre was especially strongly developed, which is regarded by the author in the light of a compensation for the poor sense of hearing. The results go far to confirm the localization theories.

ENTOMOLOGY.

The Black Harvest Spider.—In a lot of Phalangiidæ, received from Mr. Lawrence Bruner, and collected at Lincoln, Nebraska, I found a number of specimens of the species described by Say and Wood as *Phalangium nigrum.* Its characters at once place it not only out of the genus in which it is at present retained, but also out of the sub-family *Phalangiinæ,* as it belongs to the *Sclerosomatinæ,* being the first species of this sub-family to be recognized in our fauna. It apparently falls into the genus Astrobunus Thorell, and hence should be known as *Astrobunus nigrum* Say.

The literature of this Harvest Spider is quite limited. Originally described in 1821 by Thomas Say,[1] who reported it as "not uncommon in the Carolinas and Georgia," it received no further mention until 1868, when Dr. H. C. Wood again described it[2] from specimens collected in Nebraska and Texas. Bibliographical references to it have also since been published by Professor L. M. Underwood[3] and myself.[4]

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[2] *Bull. d. l. Soc. d. Psychologie Physicol.*, 1889, p. 24. Cf. *Centralblatt f. Physiologie,* IV., p. 180, 1890.

[1] Jour. Phila. Acad., VI., pp. 66-67. Compl. Writings, II., p. 14.

It is a little strange that this species does not occur in collections of Phalangiidæ from North Carolina and Alabama, kindly sent me by Professor Geo. F. Atkinson. As already noted, Say says it is not uncommon in the Carolinas and Georgia. Dr. Wood says of his Texas and Nebraska specimens: "The form just described has been recognized as *P. nigrum* Say, but as there are some slight disagreements with the description of that authority, and the localities are widely separated, it is possible that it is a distinct species." My specimens are undoubtedly the form described by Wood, and if another species should be discovered in the region mentioned by Say—agreeing with his brief description and differing from the Western form—the latter, of course, would have to be re-named.

This species may be described as follows:

Male (plate).—Body, 6 mm. long; 3.5 mm. wide; Palpi 4 mm. long. Legs, I., 11 mm.; II., 18 mm.; III., 11 mm.; IV., 17 mm.

Black: Ventrum of cephalothorax (including coxæ), trochanters, and base of femora, brown. In some specimens the apical portion of the legs and more or less of the ground color of the dorsum is brownish black. Dorsum thickly studded with small hemispherical black granules or tubercles. Segmentation of abdominal scutum indicated by faint impressed lines. Eye eminence longer than high; not canaliculate; covered with black tubercles like those on the dorsum. Palpi black, except coxal joint, which is brown; all the joints slightly arched; furnished with more or less scattered tubercles and spinose hairs. Mandibles blackish. Legs short, robust, granulate. Ventral surface of abdomen brownish black, granulate. Genital organ "slender, proximally sub-cylindrical, then flattened and slightly expanded, then rapidly expanded into a broad, somewhat circular, very thin, alate portion, then suddenly contracted and bent at an obtuse angle, ending in a very fine point."[5]

Female.—Body, 9 mm. long; 5 mm. wide. Legs, I., 11 mm.; II., 20 mm.; III., 11 mm.; IV., 19 mm. Besides its larger size, it differs from the male in having less black on the ventral surface, which is

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[2] Communications Essex Institute, VI., pp. 34-35.

[3] Canadian Entomologist, XVII., p. 168.

[4] Bull. Ill. St. Lab. Nat. Hist., III., p. 105.

[5] Wood, *l. c.*

cinnamon rufous, spotted with black; mandibles brown, black above; and the outer margins of the dorsum smooth, without the black tubercles which form a large, distinct, quadrangular, plate on the middle of the abdomen, and a transverse plate on each of the three posterior segments. The smooth margins are dark brown.

Described from eight males and one female collected at Lincoln, Nebraska. The species is well illustrated, both natural size, and with the parts magnified (at Plate XXIV), the drawings for which have been prepared for my assistant, Miss Freda Detmers.—CLARENCE M. WEED.

EXPLANATION OF PLATE.

FIG. 1. *Astrobunus nigrum* Say, male, natural size.

FIG. 2. Parts of same, magnified: *a*, dorsal surface of body; *b*, eye eminence, side view; *c*, eye eminence, front view; *d*, palpus, side view; *e*, claw of palpus, side view.

The Live Oak Caterpillar.—In a recent number of *Zoe*, a new biological journal published at San Francisco, H. H. Behr adds another insect to the list of those which the English sparrow indirectly protects. He says: "There exists around our bay a moth, *Phryganidia californica,* which lives exclusively on live oak, though I have lately found some stray larvæ on *Quercus lobata.* When, in 1853, I first found the caterpillar of this species I considered it a great prize, so rare was the little thing. Gradually the insect became less rare, and as soon as a sufficient number of shot-guns were placed in the hands of boys who shot little birds, I had ample opportunities to fill the empty spot in my collection that for years had only the male of the species on a pin.

"I have counted four generations of the insect in one summer. Nevertheless they did not endanger the life of the trees inhabited by them. There existed still a sufficient number of insect-feeding birds to decimate the four broods, especially a species of titmouse, then rather common in our surroundings, and very frequent in Marion county, which took care of the eggs and the adult caterpillars. This bird managed in some way to escape destruction by the shot-gun; but then the English sparrow was introduced by some well-meaning but imperfectly instructed people. The sparrow soon drove away the titmouse. The titmouse no more decimated the Phryganidia egg and larva, at both of which the sparrow looked with a contemptuous smile. The Phryganidia multiplied in mathematical progression; the leaves of the live oaks, for instance, at San Rafael, disappeared four times a summer; some trees survived, other succumbed; and so the introduction of the English sparrow destroyed our California live oaks. The best proof of this is that the destruction coincides with the spreading of the sparrow."

Bibliography of Economic Entomology.—The first three parts of the Bibliography of the More Important Contributions to American Economic Entomology, which has been in preparation by the U. S. Department of Agriculture since 1882, have just been issued. They comprise the writings of B. D. Walsh (Part I.); Walsh and Riley (Part II.), and C. V. Riley (Part III.); there being in the first 385 entries, in the second 479, and in the third 1556. The work has been prepared by Dr. Samuel Henshaw, and bears evidence of having been carefully done. It is accompanied by a very complete index, which will be appreciated by every working entomologist.

Entomological Notes.—The current number of the Transactions of the American Entomological Society (Vol. XVII., No. 1) contains two valuable papers by Dr. G. H. Horn on the North American species of Heterocerus and Octhebius; a similar discussion of the species of Dendroctonus by Dr. W. G. Dietz; descriptions of three new species of North American Odonata, and notes on three others, by Philip H. Calvert; descriptions of a number of new species of Agrotis, by John B. Smith; and a valuable paper by H. F. Bassett on new species of Cynipidæ.

Prof. G. F. Atkinson's excellent paper on Nematode Root-Galls (*Heterodera radicola*) has been republished in the Journal of the Elisha Mitchell Scientific Society (Vol. VI., pp. 81–130).

In the same journal (pp. 134–147), Prof. W. L. Poteat presents some interesting notes on the architectural and feeding habits of a tube-building spider (*Atypus niger* Hentz).

Mr. E. A. Schwarz has published (Proc. Ent. Soc. Washington, Vol. I., pp. 237–247) an important paper on the Myrmecophilous Coleoptera found in temperate North America. A list of the beetles and their hosts is given.

Prof. J. B. Smith has published, as Special Bulletin K, of the New Jersey Experiment Station, an extended report upon the cranberry insects of that State.

Bulletin No. 1 of the Colorado Biological Association contains a valuable paper on the Hymenoptera of Colorado, by William H. Ashmead. This is a part of the natural history survey of the State undertaken by the Association, and the paper is based largely upon material furnished by the Secretary, Mr. T. D. A. Cockerell. Three new genera are characterized, viz., Neolaraa, of the family Bembecidæ; Microbracon, of the Braconidæ, and Dolichopselephus, of the Ichneumonidæ. Sixty-seven new species are described, the descriptions of forty-one of which were drawn up from single specimens. The hymenopterous fauna of the State, so far as it is now known, includes 33 families, 247 genera, and 897 species.

ARCHÆOLOGY AND ETHNOLOGY.

On the Use of the Phonograph Among the Zuni Indians.—Ever since I began my work with the phonograph as a means of preserving the language of the American Indians, I have looked forward with great interest to a visit to some of those tribes which still remain in approximately the same condition that they were when first visited by white men. Such tribes it is almost impossible to find now in the confines of the United States. But there are some which have been very little changed.

I have been particularly anxious to make observations among the Pueblo Indians, which still possess many interesting features of great antiquity. Of all the Pueblos, except possibly the Moquis, the Zuñians, or A'sheewee as they are called in their own tongue, have been least changed from their original condition by contact with Europeans. Living at a distance from the railroad, inhabiting isolated regions difficult of access, these people have preserved the ancestral traditions and customs in their primitive form. In many ways they offer an unparallelled opportunity for the study of the religious and secular celebrations of Pueblo Indians, slightly modified from the olden time.

A previous visit to Zuñi, in the summer of 1889, had inspired in me a wish to attempt to record on the cylinders of the phonograph the songs, rituals, and prayers used by these people, especially in those most immutable of all observances, sacred ceremonials. I was particularly anxious to record the songs connected with the celebration of the mid-summer dances, which occur at or near the summer solstice. By the help of Mrs. Hemenway, of Boston, it was possible for me, in the interest of the Hemenway Expedition, to visit Zuñi Pueblo at this time, and I have been fortunate enough to take on the phonograph,

PLATE XXIV.

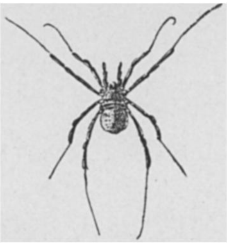

Fig. 1

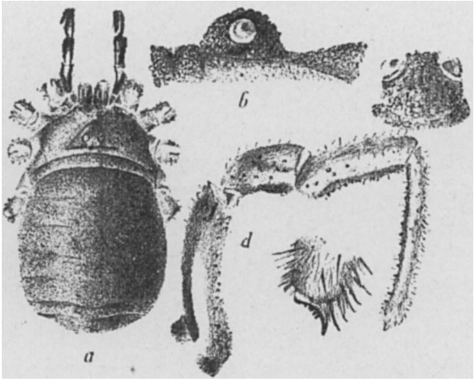

Fig. 2.

Astrobunus nigrum (Say).